

21 --13. A wireless digital base station for receiving, processing and transmitting a plurality of communications having independent data rates, the base station comprising:

first means for establishing a first communication channel having a first data communication rate to support a first communication, including means for determining the data rate required to support said first communication;

transmission channel selection means, responsive to said determining means, for selecting one or more transmission channels, from a plurality of available transmission channels, required to support said required data rate; and

transmission means for transmitting said first communication using said one or more selected transmission channels;

whereby said plurality of available transmission channels includes at least one B or D channel.

14. The base station of claim 13, whereby said transmission channel selection means selects up to two B channels and a D channel when said first communication is an ISDN communication.

15. The base station of claim 13 further including means for establishing a second communication channel having a second data communication rate to support a second communication; whereby said first data communication rate is higher than said second data communication rate.

16. The base station of claim 13, whereby said plurality of communications are selected from the following types of communications: plain old telephony service (POTS), integrated services digital network (ISDN) service, variable bit rate (VBR) data service, wideband service, leased line service and packet data service.

17. A wireless digital code division multiple access (CDMA) base station for supporting modification of data communication rates required by users, the base station comprising:

means for establishing transmission channels having predetermined data rates;

means for allocating at least one of said transmission channels to support a communication;

means for transmitting said communication at an initial data communication rate using said allocated transmission channel;

Applicant: Fatih M. Ozluturk
Application No.: 10/028,832

means for monitoring said communication and determining an adjusted data rate for continued support of said communication;

means for re-allocating said transmission channels to support said communication based on the adjusted data rate, such that the sum of the data rates of the allocated channels is at least equal to the adjusted data rate and is not greater than the adjusted data rate plus a predetermined limit; and

means for continuing the transmission of said communication within said allocated channels, whereby said base station dynamically modifies said data communication rates by re-allocating transmission channels during said communication.

18. The base station of claim 17 wherein said establishing means establishes D channels at a first data rate and B channels at a second data rate, which is greater than said first data rate.

19. The base station of claim 18 wherein said first data rate is 16 kb/s and said second data rate is 64 kb/s.

Applicant: Fatih M. Ozluturk
Application No.: 10/028,832

a/ 20. The base station of claim 19 wherein said communication is an ISDN communication and said allocating means allocates at least one D channel and a sufficient number of B channels for continued transmission of the communication from said (base station, and said predetermined limit is equal to said second data rate.)

21. The base station of claim 18 wherein said communication is an ISDN communication and said allocating means allocates at least one D channel and a sufficient number of B channels for continued transmission of the communication from (said base station, and said predetermined limit is equal to said second data rate.)

22. The base station of claim 17 further including assignment means for assigning channel codes to said transmission channels.

23. The base station of claim 22, whereby said channel codes are assigned in sets, and whereby allocating means only allocates transmission channels having channel codes from the same set to a single communication.

24. The base station of claim 17 further including:

a1 means for establishing return channels, having predetermined data transmission rates that may be different from said predetermined data rates of said transmission channels;

means for monitoring a return communication and determining a desired return data rate;

means for allocating, responsive to said monitoring means, a sufficient number of return channels for said return communication such that the total data rate of the allocated return channels is at least equal to the desired return data rate and is not greater than the desired return data rate plus a second predetermined limit; and

means for receiving the return communication within said allocated return channels.

25. The base station of claim 24 wherein said return establishing means establishes return D channels at a third data rate and return B channels at a fourth data rate, which is greater than said third data rate.

26. The base station of claim 25 wherein said third data rate is 16 kb/s and said fourth data rate is 64 kb/s.

27. The base station of claim 25 wherein said return communication is an ISDN communication and said allocating means allocates at least one D channel and a sufficient number of B channels.

28. The base station of claim 17 further supporting:
a physical layer for generating CDMA codes;
a medium access control layer for assigning and controlling said CDMA codes; and
a data link control layer, providing a link between said physical and medium access control layers, wherein the data link control layer initiates changes in the allocation of channels based on determining the minimum desired data rate for communications channels via the physical layer.

29. A wireless digital base station for supporting a plurality of communication rates using a plurality of communication channels, the base station comprising:

29-35
not cancelled

first means for processing a first communication for transmission, including
first means for determining a first data rate required to support said first communication;

means for allocating a sufficient number of communication channels for
transmission at said first data rate, said allocating means being responsive to said first
determining means; and

means for monitoring said first determining means to initiate re-allocation of
communication channels to change the first data rate.

30. The base station of claim 29 wherein said communication channels include D
channels at a first data rate and B channels at a second data rate, which is greater than said
first data rate.

31. The base station of claim 30 wherein said first data rate is 16 kb/s and said
second data rate is 64 kb/s.

32. The base station of claim 29 wherein sets of assigned channel codes are
assigned to a subset of said plurality of said communication channels, and said allocating
means allocates communication channels from the same subset to a single communication.

33. The base station of claim 32 further including:

a1 means for establishing a return communication channel including means for monitoring a return communication and determining a desired return data rate;

means for allocating a sufficient number of return channels for the return communication based on the desired return data rate such that the total data rate of the allocated return channels is at least equal to the desired return data rate and is not greater than the desired return data rate plus a predetermined return limit; and

means for receiving the return communication within said allocated return channels.

34. The base station of claim 33 wherein said first data rate is 16 kb/s and said second data rate is 64 kb/s.

35. The base station of claim 33, whereby if the return communication is an ISDN communication, said allocating means allocates at least one D channel and a sufficient number of B channels.